1. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-6 + 4i)(9 - 3i)$$

A. $a \in [-42, -38]$ and $b \in [-56, -50]$

B. $a \in [-68, -58]$ and $b \in [16, 19]$

C. $a \in [-42, -38]$ and $b \in [52, 59]$

D. $a \in [-68, -58]$ and $b \in [-18, -16]$

E. $a \in [-55, -49]$ and $b \in [-16, -6]$

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2. Simplify the expression below and choose the interval the simplification is contained within.

$$20 - 17^2 + 7 \div 18 * 19 \div 8$$

A. $[-269.87, -268.41]$

B. $[309.82, 310.51]$

C. $[308.54, 309.06]$

D. $[-268.96, -267.02]$

E. None of the above

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3. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{12}{14} + \sqrt{-9}i$$

A. Irrational

B. Not a Complex Number

C. Nonreal Complex

D. Rational

E. Pure Imaginary

4. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$-\sqrt{\frac{225}{121}} + 16i^2$$

A. Nonreal Complex

B. Pure Imaginary

C. Irrational

D. Rational

E. Not a Complex Number

5. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{63 - 22i}{-1 + 3i}$$

A. $a \in [-13, -12.5]$ and $b \in [-17.5, -16]$

B. $a \in [-64.5, -62.5]$ and $b \in [-9, -5.5]$

C. $a \in [-13, -12.5]$ and $b \in [-169, -166]$

D. $a \in [-130, -128]$ and $b \in [-17.5, -16]$

E. $a \in [-0.5, 1.5]$ and $b \in [20, 22.5]$

6. Simplify the expression below and choose the interval the simplification is contained within.

$$20 - 19 \div 14 * 6 - (16 * 17)$$

A. $[-70.43, -63.43]$

B. $[-255.23, -247.23]$

C. $[291.77, 293.77]$

D. $[-262.14, -258.14]$

E. None of the above

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7. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(9 - 6i)(2 - 8i)$$

A. $a \in [-34, -28]$ and $b \in [81, 88]$

B. $a \in [-34, -28]$ and $b \in [-86, -81]$

C. $a \in [66, 68]$ and $b \in [60, 67]$

D. $a \in [66, 68]$ and $b \in [-64, -55]$

E. $a \in [17, 23]$ and $b \in [48, 55]$

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8. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{45 - 66i}{7 - i}$$

A. $a \in [4, 6]$ and $b \in [-10.5, -9.5]$

B. $a \in [5.5, 7]$ and $b \in [65, 66.5]$

C. $a \in [6.5, 8]$ and $b \in [-9, -6.5]$

D. $a \in [380, 382]$ and $b \in [-9, -6.5]$

E. $a \in [6.5, 8]$ and $b \in [-417.5, -416]$

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9. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{-715}{5}}$$

A. Integer

B. Irrational

C. Rational

D. Not a Real number

E. Whole

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10. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{38025}{169}}$$

A. Integer

B. Not a Real number

C. Rational

D. Irrational

E. Whole
